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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/189,098	11/09/98	REINBERG	3528US- (97-1)

TRASK BRITT & ROSSA
P O BOX 2550
SALT LAKE CITY UT 84110

MMC2/1205

EXAMINER	
WEISS, H	
ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 12/05/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/189,098

Applicant(s)
Reinberg

Examiner
Howard Weiss

Group Art Unit
2814



☒ Responsive to communication(s) filed on 9/20/00

☒ This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-20 and 32-67 ~~is/are~~ pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

Claim(s) _____ is/are allowed.

☒ Claim(s) 1-20 and 32-67 ~~is/are~~ rejected.

Claim(s) _____ is/are objected to.

Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) _____.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Attorney's Docket Number: 3528US-(97-1099)

Filing Date: 11/9/98

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Reinberg

Examiner: Howard Weiss

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, 8, 11, 13, 17, 20, 52, 55, 60, 64 and 67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The Markush groupings in Claims 4, 8, 11, 13, 17, 20, 52, 55, 60, 64 and 67 should be put in the proper phrasing, "...selected from the group *consisting of*...". See MPEP §2173.05(h). The phrasing "...at least one of..." is not exclusionary and leaves the claims open for inclusion of unspecified ingredients even in major amounts (Ex parte Davis et al., 80 USPQ 448 (PTO Bd. App. 1948))

Claim Rejections - 35 USC § 102 / 103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Initially, and with respect to Claims 32 to 38, note that a "product by process" claim is directed to the product *per se*, no matter how actually made. See In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which make it clear that it is the final product *per se* which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); *In re Pilkington*, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); *Buono v. Yankee Maid Dress Corp.*, 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).

Note that Applicant has burden of proof in such cases as the above case law makes clear.

7. Claims 1 to 11 and 32 to 38 are rejected under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Brown et al.

Brown et al. show all aspects of the instant invention (e.g. Figure 4 and Column 8 Lines 3 to 47) including:

- an intermediate conductive layer **12** made of aluminum in electrical contact with a structure **10** of a semiconductor device

- an electrically conductive contact layer **26** in electrical contact with said intermediate conductive layer
- an electrical and thermal insulator component **14**, **14a**, **34** made of resin and enveloped and sandwiched between said intermediate conductive and electrically conductive contact layers

As to the grounds of rejection under section 103(a), how the contact is made does not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims and recommends the alternative (§ 102 / § 103) grounds of rejection. Also, it is obvious to substitute other equivalent conductive materials including those claimed since these are well known equivalents in the art.

The Specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom (the Specification only mentions preferred values). Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Since the Applicant has not established the criticality of the thicknesses stated and since these thicknesses are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device of Brown et al.

8. Claims 12 to 20 and 39 to 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al. in view of Ovshinsky et al.

Brown et al. show most aspects of the instant invention (Paragraph 8) except for the semiconductor device having a memory element including a memory cell comprising a phase change material with the contact structure above the memory element.

Ovshinsky et al. teach (e.g. Figure 1) to make a semiconductor device with memory cells **30** with phase change material **36** to produce memory devices with higher switching speeds at reduced energy levels (Column 5 Lines 14 to 20). Also, it is obvious that the memory device would be bellow the contact structure in area **10** of Brown et al. It would have been obvious to a person of ordinary skill in the art at the time of invention to make a semiconductor device with memory cells with phase change material and located bellow the contact structure as taught by Ovshinsky et al. in the device of Brown et al. to produce memory devices with higher switching speeds at reduced energy levels.

Response to Arguments

9. Applicant's arguments filed 9/23/00 have been fully considered but they are not persuasive. In reference to the claim language pertaining to the insulator positioned so as to at least thermally insulate an underlying conductive structure, the claiming of a new use, new function, or unknown property which is *inherently* present in the prior art does not necessarily make the claim patentable. (*In re Best*, 195 USPQ 430, 433 (CCPA 1977) and *In re Swinehart*, 439 F. 2d 210, 169 USPQ 226 (CCPA 1971); please see MPEP § 2112). Since Brown et al. show all the features of the claimed invention including the thermal component made of the claimed material, the characteristic thermal insulator properties of the component are an inherent property of Brown et al.'s invention.

The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of prior art reference, a question of fact, arises both in the context of anticipation and obviousness." *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir.1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the

references). See also *In re Grasselli*, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed.Cir. 1983).

In reference to the intermediate conductive layer only being made of copper, the claim language, taken in its broadest interpretation, does not exclude other equivalent materials (see Paragraph 3 above). Aluminum, titanium-tungsten and molybdenum are equivalent materials to copper (e.g. see Whitten et al. Column 4 Lines 55 to 57) and, therefore, it would have been obvious for one of ordinary skill in the art to substitute any of these materials for copper.

In reference to the claimed thickness, the Applicant has not established the criticality of the thicknesses stated and since these thicknesses are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the device of Brown et al.

In reference to "Product-by-Process" Claims 32 to 38, it is the final product *per se* which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Since Claim 32 is for "A contact ...", any process claim language does not have patentable weight unless it affects the final contact structure.

In reference to the rejection not addressing the problem confronted by the claimed invention (i.e. heat loss and thermal insulation of the insulating layer), the mere fact that the references relied upon by the Examiner to evince an appreciation of the problem identified and solved by the instant invention is not, standing alone, conclusive evidence of the non-obviousness of the claimed subject matter. The references may suggest doing what an applicant has done even though those of

ordinary skill in the art were ignorant of the existence of the problem (*In re Gershon*, 152 USPQ 602 (CCPA 1967)).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. *Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is (703) 308-7722 or -7724. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.*
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Howard Weiss** at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**.


Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

13. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ 530; 438/ 600, 601	thru 12/1/00
Other Documentation: none	
Electronic Database(s): EAST (USPAT)	thru 12/1/00

HW/hw

1 December 2000


OLIK CHAUDHURI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800